



UNITED STATES PATENT AND TRADEMARK OFFICE

18

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,425	11/28/2003	Nobuyasu Ioi	117882	7394

25944 7590 05/25/2005
OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

ORDERS, CHRISTOPHER H

ART UNIT	PAPER NUMBER
----------	--------------

3746

DATE MAILED: 05/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,425

Applicant(s)

IOI NOBUYASU

Examiner

Christopher H. Orders

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on November 28, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-13 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date December 31, 2003
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "91" and "26" (fig. 1) and "31" (fig. 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because the recitation of "42" (fig. 4) is presumed to be "42" to correspond with the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the

Art Unit: 3746

appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The abstract is objected to because the last sentence of the abstract refers to purported merits of the invention. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the

patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

5. The disclosure is objected to because of the following informalities:

- The recitation of "forward coil end portion 41" (pg. 25, ln. 10-11) is presumed to be --rearward coil end portion 42-- to properly reference the drawings.
- The recitation of "substantial.." (pg. 37, ln. 21) is presumed to be --substantial.-- for proper clarity.
- The recitation of "are obtain" (pg. 41, ln. 21) is presumed to be --are obtained-- for proper clarity.
- The recitation of "rearward" (pg. 50, ln. 1) is presumed to be --forward-- to properly reference an inverted embodiment of fig. 1.
- The recitation of "forward" (pg. 50, ln. 2) is presumed to be --rearward-- to properly reference an inverted embodiment of fig. 1.

Appropriate correction is required.

Claim Objections

6. Claims 5 and 13 are objected to because of the following informalities: The recitation of "said each coil segment" (claim 5, ln. 7) is presumed to be --each of said coil segments-- for proper clarity. The recitation of "linear portions said" (claim 13, ln. 5-6) is presumed to be --linear portions, said-- for proper clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 3 and 4 recite the limitation "said compressor intake aperture" in lines 4-5 and 6, respectively. There is insufficient antecedent basis for this limitation in the claims.

9. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds associated with "Japan Industrial Standards" are unclear.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harakawa et al. (US 2001/0012489) in view of Umeda et al. (5,998,903).

Harakawa et al. teach an electrically powered compressor (100) of enclosed configuration, having a casing (101, 107, 133) enclosing an internal space, with at least one refrigerant intake aperture (151) formed in said casing (101, 107, 133) for intake of an externally supplied refrigerant into said internal space, and a refrigerant outlet aperture (through hole 135 then through hole in casing part 133) for outputting said refrigerant to the exterior of said casing (101, 107, 133), an electric motor (Mo) disposed within said casing (101, 107, 133), having a stator (104) formed of a stator core (102) that is fixedly attached to said casing (101), a stator coil (103) formed on the stator core (102), a rotor (105) which is mounted for rotation with respect to said stator (104), and a drive shaft (109) which is fixedly attached to said rotor (105), a compressor section (Cp) disposed within said casing (107), driven by said electric motor (Mo) for compressing said refrigerant which has entered said internal space from said refrigerant intake aperture (151) and for impelling said refrigerant through said refrigerant outlet aperture (through hole 135 then through hole in casing part 133) in a compressed condition; said refrigerant intake aperture(s) (151) is located such as to direct a flow of said refrigerant onto at least one of a pair of axially opposed coil end portions of said stator coil (103) (see fig. 1); a first one (the left coils as seen in fig. 1) of said pair of coil (103) end

portions is located relatively far from said compressor section (Cp) and a second one (the right coils as seen in fig. 1) of said pair is located relatively close to said compressor section (Cp), and wherein said refrigerant intake aperture (151) is a single aperture which is located such as to direct said flow of refrigerant onto said first one (the left coils as seen in fig. 1) of said coil (103) end portions; said compressor section (Cp) has a movable member (114) which is directly coupled to a drive shaft (109) through an eccentric drive shaft portion (109a) of said electric motor (Mo), to be driven thereby; said casing (101, 107, 133) is positioned with said drive shaft (109) of said electric motor (Mo) oriented horizontally (see fig. 1); and said compressor section (Cp) and said electric motor (Mo) are disposed in series within said casing, with axes of respective drive shafts thereof oriented horizontally (see fig. 1).

Harakawa et al. do not expressly teach that said stator coil (103) is a segment-configuration coil formed of a plurality of coil segments each formed of an electrical conductor that is of substantially rectangular shape in cross-section, with said coil segments being mutually electrically connected in a predetermined arrangement; each of said coil segments is formed to be substantially U-shaped, with a curved portion connecting two parallel linear portions, and said pair of coil end portions are formed of a plurality of said curved portions of said coil segments; and said stator core is formed with a plurality of axially extending slots in an outer periphery thereof, and a plurality of said linear portions of said coil segments are successively stacked within each of said slots in said stator core. However, Umeda et al. teach a said stator (2) coil that is a segment-configuration coil formed of a plurality of coil segments (33) each formed of an

Art Unit: 3746

electrical conductor that is of substantially rectangular shape in cross-section (col. 19, ln. 53-55), with said coil segments (33) being mutually electrically connected in a predetermined arrangement (col. 19, ln. 58-59, col. 20, ln. 6-8, fig. 2); each of said coil segments (33) is formed to be substantially U-shaped (col. 3, ln. 33-36), with a curved portion (33c) connecting two parallel linear portions (33a, 33b), and said pair of coil end portions are formed of a plurality of said curved portions (33c) of said coil segments (33); and said stator core (32) is formed with a plurality of axially extending slots (35), and a plurality of said linear portions (33a, 33b) of said coil segments (33) are successively stacked within each of said slots (35) in said stator core (32) (see fig. 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the segment-configuration coil of Umeda et al. with the motor in the compressor of Harakawa et al. for the benefit of better motor cooling which increases output (Umeda et al. col. 5, ln. 44-48). Further, it would have been obvious matter of design choice to modify the Umeda et al. coil configuration to have the axially extending slots be placed in an outer periphery of the stator core since the applicant has not disclosed that having the slots in the outer periphery solves any stated problem or is for any particular purpose and it appears that the slots would perform equally well in the inner or outer periphery as the cooling gas will inherently flow through the entire coil in the Harakawa et al. arrangement.

11. Claim 3 as best interpreted and claim 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harakawa et al. (US 2001/0012489) in view of Umeda et al.

Art Unit: 3746

(5,998,903) as applied to claims 1 and 2 above, and further in view of Tucker (5,873,710).

Harakawa et al. in view of Umeda et al. teach many of the claim limitations including a compressor intake aperture (107a) located close to an outer periphery of said second coil end portion (the portion of 103 on the right in Fig. 1), but do not expressly teach that said refrigerant intake aperture (151) is disposed immediately facing an outer periphery of said first coil end portion (the portion of 103 to the left in Fig. 1), and said refrigerant intake aperture (151) is positioned such that said refrigerant from said intake aperture (151) is blown towards said at least one coil (103) end portion in a direction such as to circulate around an outer periphery thereof. However, Tucker teaches a compressor (10) where the refrigerant intake aperture (23) is disposed immediately facing an outer periphery of a first coil end portion (of stator 54), and said refrigerant intake aperture (23) is positioned such that said refrigerant from said intake aperture (23) is blown towards said at least one coil end portion (of stator 54) in a direction such as to circulate around an outer periphery thereof (see fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the refrigerant intake aperture arrangement of Tucker with the compressor with segment-configuration coil of Harakawa et al. in view of Umeda et al. for the benefit of an alternate intake configuration which would be better suited for a vertical compressor arrangement.

12. Claim 4 is rejected as best interpreted under 35 U.S.C. 103(a) as being unpatentable over Harakawa et al. (US 2001/0012489) in view of Umeda et al.

Art Unit: 3746

(5,998,903) as applied to claim 2 above, and further in view of Makino et al. (US 2001/0036414).

Harakawa et al. in view of Makino et al. teach many of the claim limitations, but do not expressly teach that at least one of said stator core and said rotor is formed with a plurality of axially extending through-holes, for enabling passage of a part of a flow of said refrigerant from said first coil end portion towards said compressor intake aperture. However, Makino et al. teach a compressor with through-holes (42) in the stator (3a) core. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the through-holes of Makino et al. with the compressor with segment-configuration coil of Harakawa et al. in view of Umeda et al. for the benefit of further cooling the electric motor by allowing refrigerant to pass through (Makino et al. para. 0044, ln. 9-11).

Allowable Subject Matter

13. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claim 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Art Unit: 3746

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher H. Orders whose telephone number is (571) 272-7163. The examiner can normally be reached on Monday-Friday, 7:30am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CHO


CHERYL TYLER
SUPERVISORY PATENT EXAMINER